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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: An-hsiang Wu and Charles A. Drake

For: **PROCESS FOR UPGRADING AN OLIGOMERIZATION PRODUCT**

**LETTER**

Assistant Commissioner for Patents  
Washington, D. C. 20231

Attached hereto for filing in the United States Patent and Trademark Office is the patent application identified above. This application includes an executed assignment and 0 sheet(s) of drawings.

The filing fee has been computed as follows:

Basic Fee	\$710.00
Additional Fees: Total number of claims (whether independent or dependent) over 20, times \$18.00	\$36.00
Number of independent claims over 3, times \$80.00	\$0.00
Multiple Dependent Claims (\$270)	\$000.00
Total Filing Fee	\$746.00

Please charge Deposit Account 16-1575 in the amount of the total filing fee stated above. The Commissioner is hereby authorized to charge any additional fees which may be required under 37 C.F.R. 1.16 or 37 C.F.R. 1.17, or credit any overpayment, to Deposit Account 16-1575, but is not authorized to charge any fee provided for under 37 C.F.R 1.18.

If the Examiner wishes to contact representatives of record concerning the accompanying application prior to the first Official Action, such contact should be made with the undersigned.

The following references, a copy of each is attached, are called to the Examiner's attention:

U.S. 4,292,166, Gorring et al., September 29, 1981, discloses a method for converting an asphalt-free heavy hydrocarbon oil to high V.I. low pour point lube base stock in naphtha.

U.S. 4,372,839, Oleck et al., February 8, 1983, discloses a method for enhancing both the pour point and viscosity index of crude oils of high wax content by contact of the same with two different zeolites, such as ZSM-5 and ZSM-35.

U.S. 4,428,865, Oleck et al., January 31, 1984, discloses a method for enhancing both the pour point and viscosity index of crude oils of high wax content by contact of the same with two different zeolites, such as ZSM-5 and ZSM-35.

U.S. 4,458,024, Oleck et al., July 3, 1984, discloses a single stage catalyst system and process for using same in a single stage operation for hydrodewaxing and hydrotreating petroleum residua. The catalyst comprises a ZSM-5 type zeolite in an alumina binder having specified metals content and pore volume characteristics.

U.S. 4,490,242, Oleck et al., December 25, 1984, discloses reducing the pour point of a hydrocarbon charge stock boiling above about 850°F by catalytically dewaxing the charge stock in the presence of a zeolite catalyst and subsequently subjecting at least the liquid portion thereof to hydrotreating in the presence of a hydrotreating catalyst comprising a hydrogenating

component and a siliceous porous crystalline material from the class of ZSM-5, ZSM-11, ZSM-23 and ZSM-35 zeolites.

U.S. 4,983,274, Chen et al., January 8, 1991, discloses improving the catalytic properties of a metal-containing shape selective crystalline silicate zeolite by converting the metal to an intermetallic compound.

U.S. 5,000,840, Anthes et al., March 19, 1991, discloses selective catalytic hydrodewaxing of a waxy component-containing lubricating oil stock in the presence of certain acidic zeolites, preferably associated with a hydrogenation component such as platinum, palladium or zinc.

U.S. 5,895,828, Yao et al, April 20, 1999, discloses a catalyst composition and a process for converting a hydrocarbon stream such as, for example, gasoline to olefins and C(6) to C(8) aromatic hydrocarbons such as toluene and xylenes.

Encyclopedia of Chemical Technology, Kirk-Othmer, Fourth Edition, Volume 16, pages 888-925, specifically discloses the following at page 900:

"In shape selective catalysis the pore size of the zeolite is important. For example, the ZSM-5 framework contains 10-membered rings with ~ 0.6 nm pore size. This material is used in xylene isomerization, ethyl benzene synthesis, dewaxing of lubricant oils and light fuel oil, i.e. diesel and jet fuel, and the conversion of methanol to liquid hydrocarbon fuels (21).

The zeolites used for catalysis are principally modified forms of zeolite Y, acid forms of synthetic mordenite, and ZSM-5."

Encyclopedia of Chemical Technology, Kirk-Othmer, Fourth Edition, Volume 5, page 360 states: "Activities of a family of HZSM-5 samples with different Si:Al ratios have been

studied (82). When the Al contents are low, the catalyst activity is proportional to the Al content of the zeolite over a wide range of compositions."

A form PTO-1449 is attached herewith and is incorporated herein by reference.

Respectfully submitted,

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JRA/CB

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"Express Mail" Mailing Label Number: EJ322670080US

Date Of Deposit: December 21, 2000

I hereby certify that this fee letter is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. 1.10 on the date indicated and is addressed to the Assistant Commissioner of Patents, Washington, D.C. 20231, on

December 21, 2000

(Date)

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